IN THE CLAIMS:

1. (Original) A local multipoint distribution system comprising:

a head end coupled to a plurality of base stations, each base station constituting a cell,

each base station having a plurality of sector beam antennas,

each sector beam antenna illuminating a predetermined sector of said cell with RF communication signals,

a plurality of RF subscriber stations for each sector of a cell, each subscriber station having a high gain antenna with a narrow beam width oriented toward the sector beam antenna oriented toward its assigned sector, time division multiple access control means at each subscriber station operated such that each subscriber transmits at a time different from the other subscribers in its sector so the subscribers in a given sector do not interfere with each others transmissions, respectively,

means controlling the transmitted power level such that all subscriber signals arrive at their respective base stations at about the same power level,

means controlling the transmit signal timing such that all subscriber signals arrive at their respective base stations at the exclusively assigned time thereby minimizing the possibilities of mutual interference and means controlling the transmit signal frequency such that all subscriber signals operate at their proper assigned frequency and are orthogonal to all other carrier frequencies received by the base station, and wherein

each subscriber station first, in order to initiate operation, is operated in a receive-mode only to detect a stable downstream frequency from a head end signal and detect any received frequency error and adjust its initial frequency of operation in accordance therewith.

2. (Original) A local multipoint distribution system comprising:

a head end coupled to a plurality of base stations, each base station constituting a cell,

each base station having a plurality of sector beam antennas,

each sector beam antenna illuminating a predetermined sector of said cell with RF communication signals, a plurality of RF subscriber stations for each sector of a cell,

each subscriber station having a high gain antenna with a narrow beam width oriented toward the sector beam antenna oriented toward its assigned sector,

time division multiple access control means at each subscriber station operated such that each subscriber transmits at a time different from the other subscribers in its sector so the subscribers in a given sector do not interfere with each others transmissions, respectively, and

means controlling the transmitted power level such that all subscriber signals arrive at their respective base stations at about the same power level

wherein each subscriber station first, in order to initiate operation, is operated in the receive mode only to detect a stable downstream frequency from a head end signal, and detect any received frequency error and adjust its initial frequency of operation in accordance therewith.

3. (Original) The local multipoint distribution system defined in claim 2 wherein said cells are hexagonally shaped and said sectors are arranged such that the subscribers do not radiate directly into the three db beam width of base stations of immediately adjacent cells.

4. (Original) The local multipoint distribution system defined in claim 2 wherein said cells are rectangularly shaped and the sectors of said cells are arranged such that the subscribers do not radiate directly into the three db beam width of base stations of immediately adjacent cells.

5. (Original) The local multipoint distribution system defined in claim 2 wherein each said subscriber station includes means to measure the power level from the base station, and means for comparing the power level from the base station with a reference and adjusting the power at which said subscriber station transmits in accordance therewith.

6. (Previously Presented) A cellular wireless communications system, comprising:

at least one sector defined in at least one cell;

a base station associated with each said cell;

for each said sector, a corresponding sector beam antenna coupled to said base station and oriented to illuminate said sector to which said sector beam antenna corresponds with wireless communications signals;

a plurality of subscriber stations in each said sector, each subscriber station having an antenna with a narrow beam width oriented toward said corresponding sector beam antenna;

time division multiple access control at each subscriber station of each said sector operated such that each subscriber station in any given sector transmits signals at timeslots different from other subscriber stations in said given sector so the plurality subscriber stations in said given sector do not interfere with each other's signals;

transmit power level control such that the signals transmitted by said plurality of subscriber stations in any given said sector arrive at the base station of the cell in which said given sector is defined at about a same power level;

transmit signal timing control such that the signals transmitted by any given subscriber station in each said sector in a given timeslot arrive at the base station synchronized to a reference signal provided by the base station;

transmit signal frequency control such that the signals transmitted by the plurality of subscriber stations each operates substantially at an assigned frequency; and

wherein each subscriber station, in order to initiate operation in the system, first operates in a receive-mode only to detect a downstream signal having a stable frequency from the base station, and adjusts its initial frequency of operation in accordance with any measured error between the detected stable frequency and a local frequency reference.

7. (Previously Presented) A cellular wireless communications system as claimed in claim 6, wherein at least two cells are provided and said communications signals of a first base station corresponding to a first cell have transmission characteristics which do not substantially interfere with communication signals of a second base station corresponding to a second cell which is immediately adjacent to said first cell.

8. (Previously Presented) A cellular wireless communication system as claimed in claim 6, wherein said transmit power level control at each subscriber station includes circuitry to measure base station power received by the subscriber station, to estimate range to the base station as a function of the measured level and a predetermined power level, to estimate transmit power based on the estimated range and to adjust transmit power to the base station according to the estimated transmit power.

9. (Previously Presented) A cellular wireless communication system as claimed in claim 7 wherein said transmission characteristics comprise a transmission polarity different from said other communication signals received at said second base station.

10. (Previously Presented) A cellular wireless communication system as claimed in claim 7 wherein said transmission characteristics comprise a transmission frequency different from said other communication signals received at said second base station.

11. (Previously Presented) A cellular wireless communication system as claimed in claim 6 wherein said communication signals are transmitted at different time intervals and at different frequencies from additional communication signals received by said base station.

12. (Previously Presented) A cellular wireless communication system as claimed in claim 6 wherein said transmit power level control compares a power reference signal for a given subscriber station with a power level of signals received by the given subscriber station from said base station.

13. (Previously Presented) A subscriber station for use in a cellular communication system comprising a cell, a base station associated with said cell, said base station transmitting a downstream communication signal through an antenna associated with said base station, said subscriber station communicating with said base station via an upstream communication signal and said subscriber station comprising a local antenna oriented towards said antenna to receive said downstream communication signal and to transmit to said base station said upstream communication signal, wherein during initiation of operation of said subscriber station, said subscriber station first operates in a receive-only mode to detect said downstream communication signal having a stable downstream frequency, then detects any received frequency error in said downstream communication signal and then adjusts frequency characteristics of said upstream communication signal utilizing said received frequency error.

14. (Previously Presented) A subscriber station for use in a cellular communication system as claimed in claim 13 wherein said cellular communication system comprises a sector associated with said cell, said base station being associated with said sector, said antenna comprising a sector beam antenna transmitting said downstream communication signal, said sector beam antenna illuminating an area of said sector, said subscriber station located in said sector, said subscriber station communicating with said upstream communication signal in a time division multiple access manner and said local antenna utilizing a narrow width transmission beam oriented towards said sector beam antenna to receive said downstream communication signal and to transmit to said base station said upstream communication signal.

15. (Previously Presented) A subscriber station as claimed in claim 14 comprising an adjustable power level transmitter which adjusts a transmission power level at which said subscriber station transmits said upstream communication signal to said base station in response to a comparison made between a power measurement of said downstream communication signal with a reference downstream communication signal power value.

16. (Previously Presented) A subscriber station as claimed in claim 14 comprising an adjustable frequency transmitter which adjusts a transmission frequency at which said subscriber station transmits said upstream communication signal by synchronizing said transmission frequency to a transmission frequency of said downstream communication signal.

17. (Previously Presented) A subscriber station as claimed in claim 16 wherein said adjustable frequency transmitter utilizes a phase lock loop arrangement to track said transmission frequency of said downstream communication signal.

18. (Previously Presented) A subscriber station as claimed in claim 14 comprising an upstream communication signal timing control which adjusts a transmission time of said upstream communication signal such that said upstream communication signal arrives at said base station at a time substantially around a timeslot assigned to said subscriber station, said timeslot differing from other timeslots assigned to other subscriber stations located in said sector.

19. (Previously Presented) A method of initiating operation of a subscriber station for use in a cellular communication system comprising a sector, a base station associated with said sector, a plurality of sector beam antennas associated with said base station, said subscriber station located in said sector, said subscriber station communicating with said base station via an upstream communication signal in a time division multiple access manner, said subscriber station having a narrow width transmission beam antenna oriented towards said given sector beam antenna, said subscriber station communicating with said base station through a given sector beam antenna of said plurality of sector beam antennas, said method comprising

initially operating said subscriber station in a receive-only mode to detect a downstream communication signal having a stable downstream frequency from said base station, then testing for a frequency error in said downstream communication signal and then adjusting frequency characteristics of said upstream communication signal to said base station signals utilizing said frequency error.

20. (Previously Presented) A method of initiating operation of a subscriber station as claimed in claim 19 wherein said upstream communication signal is transmitted at a different time interval than other upstream communication signal from other subscribers stations in said sector.

21. (Previously Presented) A method of initiating operation of a subscriber station as claimed in claim 19 wherein said upstream communication signal utilizes a distinguishable transmission frequency from other upstream communication signals of other subscriber stations in said sector.

22. (Previously Presented) A method of initiating operation of a subscriber station as claimed in claim 19 comprising measuring power of a received communication signal received by said subscriber station from said base station, determining a range to said base station as a function of said power and a predetermined power level, determining a transmit power value for said upstream communication signal using said range and adjusting a transmit power level for said upstream communication signal according to said transmit power value.

23. (Previously Presented) A method of initiating operation of a subscriber station as claimed in claim 19 comprising adjusting a transmission power level at which said subscriber station transmits said upstream communication signal to said base station using a comparison made between a measurement of power of a received communication signal received by said subscriber station from said base station and a reference downstream communication signal power value.

24. (Previously Presented) A method of initiating operation of a subscriber station as claimed in claim 19 comprising adjusting a transmission frequency at which said subscriber station transmits said upstream communication signal by synchronizing said transmission frequency to another transmission frequency of a received communication signal received by said subscriber station from said base station.

25. (Previously Presented) A method of initiating operation of a subscriber station as claimed in claim 19 comprising adjusting a transmission time of said upstream communication signal such that said upstream communication signal arrives at said base station at a time substantially around a timeslot assigned to said subscriber station, said timeslot differing from other timeslots assigned to other subscriber stations located in said sector.

26 - 32. (Cancelled)

33. (Previously Presented) A cellular wireless communications system comprising:

a cell defining a region for wireless communications, said cell having at least one sector;

a base station associated with said cell;

a sector beam antenna coupled to said base station and oriented to illuminate said sector with wireless communications signals;

a plurality of subscriber stations in said sector, each subscriber station of said plurality of subscriber stations having an antenna in communication with said sector beam antenna;

time division multiple access control at said each subscriber station such that every subscriber station of said plurality of subscriber stations transmits signals at a timeslot different from all other subscriber stations of said plurality of subscriber stations;

transmit power level control at said each subscriber station such that signals transmitted by said every subscriber station arrive at said base station at about a same power level as signals transmitted by said other subscriber stations;

transmit signal timing control at said each subscriber station such that signals transmitted by said every subscriber station arrive at said base station synchronized to a reference signal provided by said base station;

transmit signal frequency control at said each subscriber station such that signals transmitted by said every subscriber station operates substantially at an assigned frequency; and

adjustment control at said each subscriber station to periodically adjust at least one of frequency, timing and power of signals transmitted by said each subscriber station to said base station.

34. (Previously Presented) The cellular wireless communications system of claim 33 wherein said system is a local multipoint distribution system and each subscriber is initialized prior to operation with said base station.

35. (Previously Presented) The cellular wireless communications system of claim 34, further comprising a comparison module at said base station to examine signals received at said base station for an error value in at least one of frequency, timing and power from an expected value for a transmitting subscriber station of said plurality of subscriber stations and a signal generation module to encode an error signal indicating said error value for transmission to said transmitting subscriber station.

36. (Previously Presented) The cellular wireless communications system of claim 35 wherein said transmitting subscriber station processes said error signal and said adjustment control controls any of said transmit power level control, said transmit signal timing control and said transmit signal frequency control to adjust a transmission parameter responsive to said error value.

37. (Previously Presented) The cellular wireless communications system of claim 36 wherein said antenna generates a narrow beam width transmission signal.

38. (Previously Presented) The cellular wireless communications system of claim 37 wherein said each subscriber station is initialized by operating in a receive-mode only to detect a downstream signal having a stable frequency from said base station and adjusting its initial frequency of operation in accordance with any measured error between the detected stable frequency and a local frequency reference.